



**Towards a Sustainable Implementation of Solar
Thermal Power Plants Technology in the MENA**

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Deutsches Zentrum
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in der Helmholtz-Gemeinschaft

www.dlr.de/enerMENA

Background

Objective

Support the sustainable implementation of concentrating solar power plant technology in MENA

In line with the DESERTEC Concept

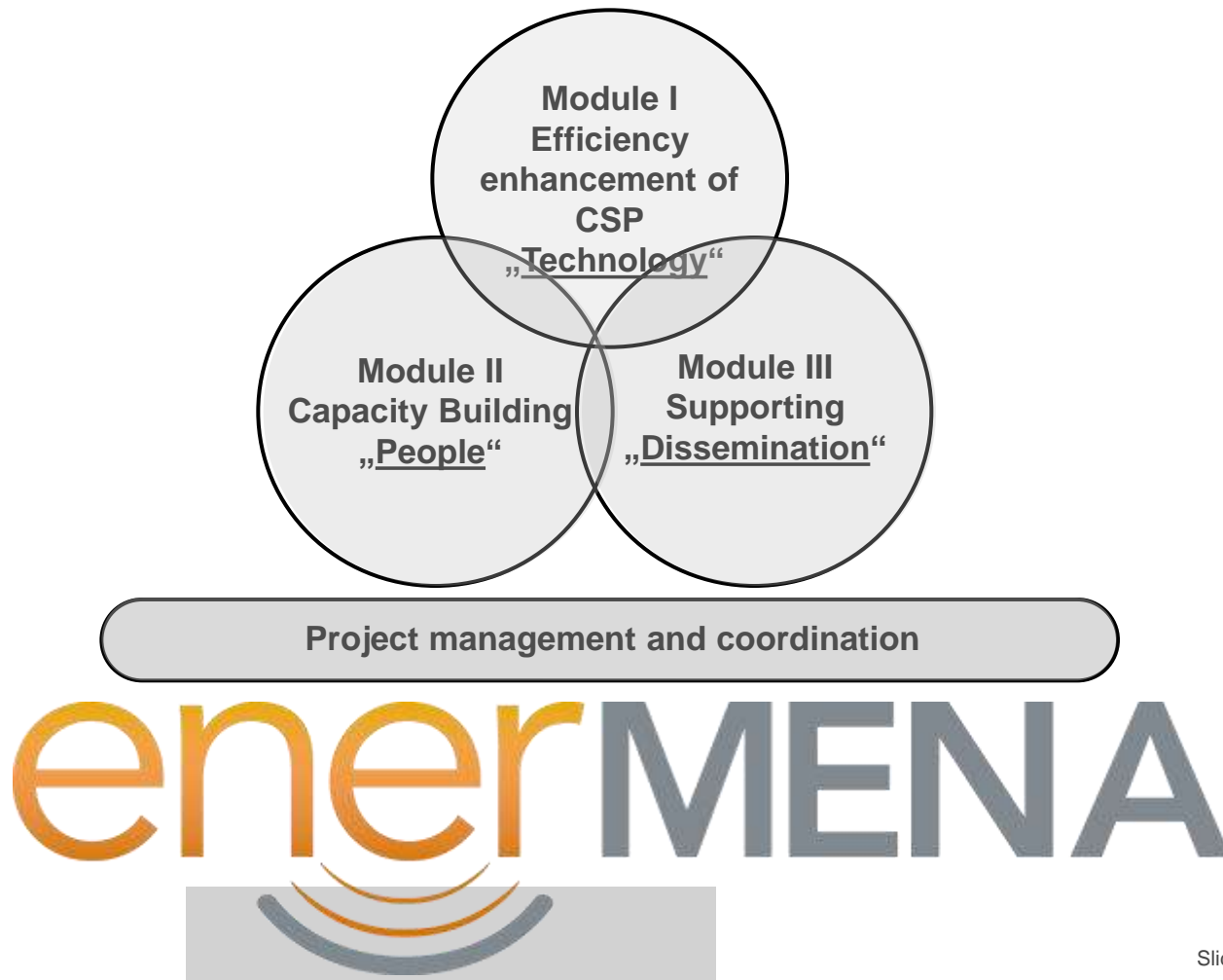
Objectives are achieved by permanent

- Support of people
- Improvement of technology
- Support of the dissemination of CSP-Technology



DLR initiative, supported by the German Federal Foreign Office since 2009

enerMENA structure: Three pillars for implementation



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Module I: Technology

“Development of optimization techniques”



Activities

- Development of optical and thermal measurement technologies to qualify CSP Plants and for **quality control** of plants components.
 - QFly Technology, and
 - The Calibration Bypass Technology
- Provide mobile measurement **laboratories** to MENA partners.



Planned activities 2012

- Supporting the creation of local **test and R&D infrastructure** at partner institutions.
- **Workshop in Amman am 5. – 07.06.2012** to present country reports on existing test infrastructure and develop plans
- Performing thermal and optical **measurement campaigns** with MENA partners at their CSP power plants,



Module II: People

“Training program for field engineers and university teaching materials”



Activities

- Technical **Capacity Building Program** with the aim to establish local technical CSP teams in MENA
 - eM-CB01: PSA in Almeria 11/2010.
 - eM-CB02 at Technopole Tunisia in 11/2011
- Preparation of enerMENA CSP Teaching Materials. 
- Prepare expert training materials,
- Organization of CSP expert Training Courses
e.g. in Tunis 11/2011, Amman 02/2012

Planned Activities 2012


- Organize eM-CB03 in Egypt
- **Teaching material implementation workshop** 12. to 15.06.2012 in Oujda
- 03-14-09.2012 Workshop at PSA to prepare **Internships in German Companies** for 15 students
- **enerMENA Video Tutorials** (55 lectures) out of the training materials for faster dissemination released in autumn 2012

Module III: Dissemination

enerMENA Meteo-Network - R&D Activities



Activities

- Preparation of **coaching material** for yield analysis and project planning methodology
- Installation of the enerMENA-Meteo-Network to provide high quality DNI and Metedata 
- Establishment of local contact points for information dissemination at partner institutions.

Planned activities 2012

- **Conjoint Research** activities with MENA institutions:
 - Soiling of reflectors and extinction of solar irradiance
 - Aging of materials in desert climates
 - Meteorological data assessment
- Organize capacity building courses for project planners and managers.

Lessons learnt from 3 years of enerMENA

- Bureaucracy is major hurdle that slows down implementation
- enerMENA can finance workshops, travel cost, some equipment for MENA participants. Financing of activities of local partners to implement know-how and perform research should come from MENA countries and is often insufficient.
- Understanding of the DESERTEC idea /concept is diffuse. Expectations from MENA and European partners does not always match

enerMENA Towards a Sustainable Implementation of Solar Thermal Power in the MENA region

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BACK-UP SLIDES



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Module II: eM-CB01



Capacity Building Course at the Spanish Plataforma Solar de Almeria

- 4- weeks in November 2010
- Practical and Theoretical modules
- 25 Engineers from partner countries (Multiplicators)

